Subject Index

A

Abstraction-synthesis methodology, information-systems development, 3
Ada, teaching in context of software engineering, 281
Algorithms
  external sorting, distributive and mergesort, 187
Achitecture
  distributed data base systems, 77
  distributed file system, 169
  open systems interconnection for satellite communication networks, 201

B

Binsort, as external sorting algorithm, 187
Bucketsort, as external sorting algorithm, 187
Buffer, multiple-write, for write-once optical disk, 15

C

COBOL, empirical study of programs in, 271
COBSTYLE, style analyzer for COBOL programs, 271
Communication networks, satellite, application of multiple-level protocols, 201
Complexity metrics, software, 29
Computer industry, myths, unethical practices, personnel requirement (editorial), 151
Computer science, as a science (editorial), 75
Control flow, integration into complexity model, 29

D

Data base systems, distributed, architecture, 77
Data flow, integration into complexity model, 29
Design space, software, 3
Distributed data base management system, 77
Distributed data base systems
  architecture and properties, 77
Distributed file system
  mean value analysis to approximate performance indices, 169
  validated performance model for, 169
Distributive sorting, as external sorting algorithm, 187

E

Education
  software engineering, 231
    Boston University, 267
    Seattle University, 245
    Texas Christian University, 235
  teaching Ada in context of software engineering, 281
ENCOMPASS
  architecture, 41
  integration with PLEASE specification language, 41, 97
  software development environment, 41
Environment
  software design, ENCOMPASS, 41, 97
  software design, Oregon Rule-Based System, 113
Ethics, computer industry, (editorial), 151

F

File management system, for magnetic disk used as buffer for write-once optical storage, 15
Function support, and abstraction-synthesis methodology, 3

G

Graphical informations systems, object-oriented, 23
Graphics-application development, evaluation, 23

H

Halstead model, of program length measure, 69

I

Industrial engineering, as approach to software development, 159
Information systems
  development,
    abstraction-synthesis method, 3
    object-oriented graphical, 23
    software, synthetic approach to design, 3
Interactive television, software engineering, Boston University, 267
Interconnectivity metrics, 29
Intermodule dependencies, object-oriented systems, 23

L

Language
  executable specification, PLEASE, 97
  COBOL programs, empirical study, 271
  Oregon Rule-Based System, 113
  overview of software design, 125
  programs, nesting, 139
Life-cycle model, software development, 41

M

Magnetic buffer file management system, 15
Mean value analysis, approximation of performance in distributed file systems, 169
Mergesort, as external sorting algorithm, 187
Metrics, interconnectivity, program organization, 29
Myths, computer industry, (editorial), 151

N

Nesting, and program complexity measures, 139
Network environments, distributed file systems, 169
Networks, satellite communication, application of multiple-level protocols, 201

O

Object-oriented systems
  intermodule dependencies, 23
  problem-decomposition strategies, 23
Open system interconnection model, satellite communication networks, 201
Optical disk
  file management system, 15
  write-once, multiple-write buffer for, 15
Optimal path-selection model, structural program testing, 55

Oregon Rule-Based System
constituents, 113
forward-chaining or data driven, 113
language and environment for building rule-based system, 113

P
Path-selection model, structural program testing, 55
Personnel requirements, computer industry (editorial), 151
PLEASE
integration with ENCOMPASS environment, 41, 97
specifications for incremental software development, 97
Practice, temporal relationship with theory, 65
Problem-decomposition strategies, object-oriented systems, 23
Program complexity measures, nesting, 139
Program construction, Halstead model, 69
Program length measure, 69
Program organization, interconnectivity metric, 29
Program size, integration into complexity model, 29
Program testing
economical, 55
structural, optimal path-selection model for, 55
zero-one integer programming problem, 55
Programming, empirical study of COBOL programs, 271

R
Rule-based system, software design issues in, 113

S
Satellite communication networks, application of multiple-level protocols, 201
Software
complexity metrics, 29
design space, 3
developing a bad project (editorial), 1
development environment (ENCOMPASS), 41
information-systems, synthetic approach to design, 3
validation, 41
verification, 41
Software design
overview of languages, 125
rule-based system, 113
Software development
industrial engineering approach, 159
metric tools (editorial), 71
needs of industry, 253
Oregon Rule-Based System, 113
Software engineering
as engineering (editorial), 75
as graduate-level material, 231
education
Boston University, 267
Seattle University, 245
Texas Christian University, 235
teaching Ada in context of, 281
training, Texas Instruments, 253
Software product quality, classification methods, 213
Software productivity (editorial), 217
Software science, resolving anomaly of, 69
Software science metric tools (editorial), 71
Sorting algorithms, external, distributive and mergesort, 187
Style analyzer, COBSTYLE for COBOL programs, 271

T
Technology maturation (editorial), 157
Theory, temporal relationship with practice (editorial), 65
Training, software engineering, Texas Instruments, 253

V
Virus, publication of (editorial), 229

W
WORM optical storage, multiple-write buffer for, 15
Write-once optical storage, multiple-write buffer for, 15

Z
Zero-one integer programming problem, 55

Author Index

Agresti, W. W., 71

Baker, A. L., 139
Benander, A. C., 271
Benander, B. A., 271
Blum, B. I., 217
Boloix, G., 29
Brackett, J. W., 267
Budgen, D., 261
Bulgren, W. G., 15

Campbell, R. H., 41, 97
Cañas, D. A., 15
Card, D. N., 71, 159
Chastain, C. L., 77
Comer, J. R., 235

Dominick, W. D., 23

Eskenasi, A., 213

Fickas, S., 113
Friedman, H. H., 151
Friedman, L. W., 151

Glass, R. L., 1, 65, 75, 157, 229

Hác, A., 169
Henderson, P., 261

Howatt, J. W., 139
Hsu, S. R., 55

Kallistros, V., 125
Kampfner, R. R., 3
Keller-McNulty, S., 69

Lin, J. C., 55

McNulty, M. S., 69
Mills, E. E., 245
Moore, F. L., 253
Moreau, D. R., 23

Pintelas, P. E., 125
Purvis, P. R., 253

Ram, S., 77
Rattray, C., 261
Robillard, P. N., 29
Rodjak, D. J., 235
Rogers, M. B., 201

Terwilliger, R. B., 41, 97
Tomayko, J. E., 231, 281

Verkamo, A. I., 187

Wang, H. S., 55